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syngo® Dynamics
VA30A

DS

DICOM Conformance Statement DICOM Image Review

Conformance Statement (DICOM)

Revision 1.0

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1 Introduction

1.1 Purpose of this Document

This document is a DICOM Conformance Statement for the DICOM Image Review (DIR).

The DIR provides diagnostic display using standard Web browser software (such as Internet Explorer) of DICOM Images conforming to the Ultrasound Image Storage, Ultrasound Multi-frame Image Storage, X-ray Angiographic Image Storage and Secondary Capture Image Storage SOP Classes. Images may be reviewed from the DIR via Portal Image Review (utilizing HTML5) displayed directly on a browser tab, through the OQV, or through the DICOM Image Review component which displays DICOM images without any additional compression. The DIR is part of the Siemens *syngo*® Suite and is designed to operate in conjunction with the *syngo*® Dynamics Server. The DIR uses DICOM as an external interface standard. Non-DICOM internal communication mechanisms between the DIR and the *syngo*® Dynamics Server are used for the transfer and display of images.

The DIR provides support for the DICOM US Region Calibration Module. When ultrasound images contain this module, the DIR is able to interpret the region calibration data provided by the ultrasound acquisition unit. Standard pixel spacing attributes are also supported if provided with ultrasound captures. The DIR provides support for the DICOM Imager Pixel Spacing and Estimated Radiographic Magnification Factor attributes often sent with X-Ray Angiographic captures. When XA captures contain this data the DIR can interpret them. In the case where no calibration data is provided by the acquisition device, captures may be manually calibrated using the DIR.

1.1.1 Image Display Support (Software)

The DIR displays Ultrasound and X-Ray Angiographic images from the *syngo*® Dynamics Server.

The DIR supports the image formats shown in Table 1.1-1 when displaying images using software. The DIR supports the display of 8, 10, 12 and 16 bit image formats.

Photometric Interpretation	Transfer Syntax	Planar Configuration
MONOCHROME1	Uncompressed Implicit VR Little Endian 1.2.840.10008.1.2	N/A
	Uncompressed Explicit VR Little Endian 1.2.840.10008.1.2.1	N/A
	RLE Lossless Image Compression 1.2.840.10008.1.2.5	N/A
	JPEG Lossy Baseline (Process 1) 1.2.840.10008.1.2.4.50	N/A
	JPEG Lossless, Non-Hierarchical (Process 14) 1.2.840.10008.1.2.4.57	N/A
	JPEG Lossless, Non-Hierarchical (Process 14) 1.2.840.10008.1.2.4.70	N/A
MONOCHROME2	Uncompressed Implicit VR Little Endian 1.2.840.10008.1.2	N/A
	Uncompressed Explicit VR Little Endian 1.2.840.10008.1.2.1	N/A

	RLE Lossless Image Compression 1.2.840.10008.1.2.5	N/A
	JPEG Lossy Baseline (Process 1) 1.2.840.10008.1.2.4.50	N/A
	JPEG Lossless, Non-Hierarchical (Process 14) 1.2.840.10008.1.2.4.57	N/A
	JPEG Lossless, Non-Hierarchical (Process 14) 1.2.840.10008.1.2.4.70	N/A
RGB	Uncompressed Implicit VR Little Endian 1.2.840.10008.1.2	0 - Chunky
	Uncompressed Implicit VR Little Endian 1.2.840.10008.1.2	1 - Planar
	Uncompressed Explicit VR Little Endian 1.2.840.10008.1.2.1	0 - Chunky
	Uncompressed Explicit VR Little Endian 1.2.840.10008.1.2.1	1 - Planar
	JPEG Lossless, Non-Hierarchical (Process 14) 1.2.840.10008.1.2.4.70	0 - Chunky
	JPEG Lossless, Non-Hierarchical (Process 14) 1.2.840.10008.1.2.4.70	1 - Planar
YBR_FULL	Uncompressed Implicit VR Little Endian 1.2.840.10008.1.2	0 - Chunky
	Uncompressed Explicit VR Little Endian 1.2.840.10008.1.2.1	0 - Chunky
	RLE Lossless Image Compression 1.2.840.10008.1.2.5	0 - Chunky
	RLE Lossless Image Compression 1.2.840.10008.1.2.5	1 - Planar
	JPEG Lossless, Non-Hierarchical (Process 14) 1.2.840.10008.1.2.4.70	0 - Chunky
YBR_FULL_422	Uncompressed Implicit VR Little Endian 1.2.840.10008.1.2	0 - Chunky
	Uncompressed Explicit VR Little Endian 1.2.840.10008.1.2.1	0 - Chunky
	JPEG Lossy Baseline (Process 1) 1.2.840.10008.1.2.4.50	0

Table 1.1-1 Software Review Supported Image Formats

1.2 Limitations

(0028, 0100) and (0028, 0101) Bits Allocated and Bits Stored: Although we will store objects with tag values of Bits Allocated = 16 and Bits Stored = 8, DIR will not support the display of these images.

1.3 Sources for this Document

ACR-NEMA Digital Imaging and Communications in Medicine (DICOM) Version 3.0 Parts 1 – 18.

1.4 Acronyms and Abbreviations

The following Acronyms and abbreviations are used in this document:

• ACR	American College of Radiology
• AE	Application Entity
• DICOM	Digital Imaging and Communications in Medicine
• DIR	DICOM Image Review
• NEMA	National Electrical Manufacturers Association
• OQV	Original Quality Viewer
• SCP	Service Class Provider
• SCU	Service Class User
• SOP	Service Object Pair
• SR	Structured Report
• TCP/IP	Transmission Control Protocol/Internet Protocol

2 Network Conformance Statement

2.1 Introduction

This section of the DICOM conformance statement specifies the compliance to the DICOM conformance requirements for the relevant Networking features of the *DIR*. Note that the format of this section follows the format described in DICOM Standard PS 3.2 (Conformance). Please refer to that part of the standard while reading this section.

The DIR is a medical imaging workstation designed to provide diagnostic review of Ultrasound images and X-Ray Angiographic images. It operates in conjunction with the *syngo*® Dynamics Server for retrieval and display of images. Refer to the *syngo*® Dynamics Server DICOM Conformance Statement for a description of the *syngo*® Dynamics Server's DICOM capabilities.

2.2 Implementation Model

The DIR DICOM Service is implemented as a separate process that can initiate associations with remote Application Entities. The Service is started automatically during system start-up and will remain active until system shut down.

2.2.1 Sequencing of Real World Activities

Not Applicable

2.3 Communication Profiles

2.3.1 Supported Communications Stacks

The DIR provides DICOM V3.0 TCP/IP Network Communication Support as defined in Part 8 of the DICOM Standard.

2.3.2 OSI Stack

Not supported.

2.3.3 Point-to-Point Stack

Not Supported.

2.4 Extensions/Specializations/Privatizations

The DIR has no extensions, specializations or privatizations of SOP Classes and Transfer Syntaxes.

2.5 Support of Extended Character Sets

The DIR supports the following character sets:

- ISO-IR 6 (default) Default repertoire
- ISO-IR 100 Latin Alphabet No. 1

The DIR does not support multi-byte characters.